



U.S. ENVIRONMENTAL PROTECTION AGENCY

**OFFICE OF INSPECTOR GENERAL**

# FY 2017

## EPA Management Challenges



17-N-0219  
May 18, 2017

## Abbreviations

DWSRF	Drinking Water State Revolving Fund
EPA	U.S. Environmental Protection Agency
FTE	Full-Time Equivalent
FY	Fiscal Year
GAO	U.S. Government Accountability Office
MATS	Management Audit Tracking System
OIG	Office of Inspector General
SDWA	Safe Drinking Water Act

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# At a Glance

## **What Are Management Challenges?**

According to the Government Performance and Results Act Modernization Act of 2010, major management challenges are programs or management functions, within or across agencies, that have greater vulnerability to waste, fraud, abuse and mismanagement, where a failure to perform well could seriously affect the ability of an agency or the federal government to achieve its mission or goals.

As required by the Reports Consolidation Act of 2000, we are providing issues we consider as the U.S. Environmental Protection Agency's (EPA's) major management challenges for fiscal year 2017.

This report addresses all of the EPA's strategic goals and cross-agency strategies.

Send all inquiries to our public affairs office at (202) 566-2391 or visit [www.epa.gov/oig](http://www.epa.gov/oig).

Listing of [OIG reports](#).

## **EPA's Fiscal Year 2017 Management Challenges**

### **What We Found**

**Attention to agency management challenges could result in stronger results and protection for the public, and increased confidence in management integrity and accountability.**

#### ***The EPA Needs to Improve Oversight of States, Territories and Tribes Authorized to Accomplish Environmental Goals:***

- The EPA has made important progress, but our work continues to identify challenges throughout agency programs and locations, and many of our recommendations are still not fully implemented.

#### ***The EPA Needs to Improve Its Workload Analysis to Accomplish Its Mission Efficiently and Effectively:***

- The EPA needs to identify its workload needs so that it can more effectively prioritize and allocate limited resources to accomplish its work.

#### ***The EPA Needs to Enhance Information Technology Security to Combat Cyber Threats:***

- Though the EPA continues to initiate actions to further strengthen or improve its information security program, the agency lacks a holistic approach to managing accountability over its contractors, and lacks follow-up on corrective actions taken.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

May 18, 2017

**MEMORANDUM**

**SUBJECT:** EPA's Fiscal Year 2017 Management Challenges  
Report No. 17-N-0219

**FROM:** Arthur A. Elkins Jr.

A handwritten signature in black ink, appearing to read "Arthur A. Elkins Jr.", is written over the printed name.

**TO:** Scott Pruitt, Administrator

We are providing you with a list of areas that the Office of Inspector General (OIG) considers as major management challenges confronting the U.S. Environmental Protection Agency (EPA). The project number for this report was OPE-FY17-0003. According to the Government Performance and Results Act Modernization Act of 2010, major management challenges are programs or management functions, within or across agencies, that have greater vulnerability to waste, fraud, abuse and mismanagement, where a failure to perform well could seriously affect the ability of an agency or the federal government to achieve its mission or goals.

The Inspector General Act of 1978, as amended, directs Inspectors General to provide leadership to the agency through audits, evaluations and investigations, as well as additional analysis of agency operations. The enclosed management challenges reflect findings and themes resulting from many such efforts. Drawing high-level agency attention to these key issues is an essential component of the OIG's mission.

The Reports Consolidation Act of 2000 requires our office to annually report what we consider the most serious management and performance challenges facing the agency. Additional challenges may exist in areas that we have not yet reviewed, and other significant findings could result from additional work. The attachment summarizes what we consider to be the most serious management and performance challenges facing the agency, and assesses the agency's progress in addressing those challenges.

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Like the U.S. Government Accountability Office does with its High-Risk List, each year we assess the agency's efforts against the following five criteria required to justify removal of management challenges from the prior year's list:

1. Demonstrated top leadership commitment.
2. Agency capacity – people and resources to reduce risks, and processes for reporting and accountability.
3. Corrective action plan – analysis identifying root causes, targeted plans to address root causes, and solutions.
4. Monitoring efforts – established performance measures and data collection/analysis.
5. Demonstrated progress – evidence of implemented corrective actions and appropriate adjustments to action plans based on data.

The U.S. Government Accountability Office's 2017 High-Risk Series report describes these five criteria as a road map for efforts to improve and ultimately address high-risk issues. Addressing some of the criteria leads to progress, while satisfying all of the criteria is central to removal from the list.

This year, we retained three management challenges from last year's list due to persistent issues, and dropped one issue (management oversight to combat waste, fraud and abuse). The management challenge was removed due to agency efforts in addressing issues we identified.

We will post this report to our website at [www.epa.gov/oig](http://www.epa.gov/oig). We welcome the opportunity to discuss our list of challenges and any comments you or your staff might have.

Attachment

# CHALLENGE: The EPA Needs to Improve Oversight of States, Territories and Tribes Authorized to Accomplish Environmental Goals

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## CHALLENGE FOR THE AGENCY

In recent years, our work has identified the absence of robust oversight by the U.S. Environmental Protection Agency (EPA) of states, territories and tribes authorized to implement environmental programs under several statutes. The EPA has made important progress, but recent and ongoing EPA Office of Inspector General (OIG) and U.S. Government Accountability Office (GAO) work continues to support this as an agency management challenge.



## BACKGROUND

To accomplish its mission, the EPA develops regulations and establishes programs that implement environmental laws. Many federal environmental laws establish state, territorial and tribal regulatory programs that give states, territories and tribes the opportunity to enact and enforce laws. The EPA may authorize states, territories and tribes to implement environmental laws when they request authorization and the EPA determines a state, territory or tribe capable of operating the program consistent with federal standards. The EPA performs oversight of state, territorial and tribal programs to provide reasonable assurance that they achieve national goals to protect human health and the environment. Oversight of state, territorial and tribal activities requires that the EPA establish and maintain consistent national baselines that state, territorial and tribal programs must meet; monitor state, territorial and tribal programs to determine whether they meet federal standards; and ensure that federal dollars expended help achieve oversight objectives.

The EPA relies heavily on authorized states, territories and tribes to obtain environmental program performance data and implement compliance and enforcement programs. For example:

- Forty-nine states, five territories (American Samoa, Guam, Commonwealth of the Northern Mariana Islands, Puerto Rico and the U.S. Virgin Islands) and one tribe administer the Public Water Supply Supervision program under the Safe Drinking Water Act.
- Forty-eight states, one territory (Guam), and the District of Columbia are authorized to administer the Resource Conservation and Recovery Act hazardous waste program.
- Forty-six states fully and one territory (U.S. Virgin Islands) partially administer point source programs (National Pollutant Discharge Elimination System) under the Clean Water Act.
- Every state and territory, as well as one tribe, administer Title V of the Clean Air Act, designed to regulate the largest sources of air pollution.

These states, territories and tribes perform a critical role in supporting the EPA's duty to execute and enforce environmental laws. However, the EPA has the authority and responsibility to enforce

environmental laws when states, territories and tribes do not. Many EPA programs implement a variety of formal and informal oversight processes that are not always consistent across EPA regions and the states, territories and tribes.

## **THE AGENCY'S PROGRESS**

We have identified EPA oversight of authorized state, territorial and tribal programs as an agency management challenge since fiscal year (FY) 2008. The EPA has made progress in reviewing and measuring inconsistencies in its oversight of state, territorial and tribal programs; using EPA authority when states, territories and tribes have failed to use their delegated authority; and revising EPA policies to improve consistency in oversight.

Since 2008, the EPA has made state oversight an agency priority. The EPA included oversight in the EPA's FYs 2012–2015 Action Plans for Strengthening State, Tribal, and International Partnerships. The EPA formed a senior-level workgroup that noted additional recommendations on state oversight, including improving consistency for identifying regional and state roles during EPA program review, and developing an initial set of common principles. In 2013, the EPA developed the new key performance indicator, referred to as *Oversight of State Delegations Key Performance Indicator*. The EPA also adopted a cross-agency strategy on “Launching a New Era of State, Tribal, Local, and International Partnerships” in its FYs 2014–2018 Strategic Plan, and revised its planning and commitment-setting process beginning in FY 2017 to provide “earlier and more meaningful engagement with states and tribes.”

In 2016, the EPA released “Promoting Environmental Program Health and Integrity: Principles and Best Practices for Oversight of State Permitting Programs,” for the agency and states to use to enhance the efficiency and effectiveness of the oversight system. The agency developed this document to “deliver on a commitment in the EPA's cross-agency strategy to launch a new era of state, tribal, local and international partnerships and to help respond to recommendations for strengthening oversight from the EPA's Office of Inspector General.” According to the agency, it continues to improve its state oversight practices to ensure consistency by, for example, establishing the State Program Health and Integrity Workgroup. This interagency workgroup is composed of the EPA's national program offices for air, enforcement and water, as well as states and media associations; it gathers and analyzes information on oversight of state practices, identifies gaps, and develops solutions. In August 2016, as a result of the efforts from the workgroup, the agency released a set of principles and best practices for EPA and state collaboration in promoting environmental program health and integrity.

The EPA has made additional changes in response to recommendations in our reports. For example:

- In 2016, the EPA completed all corrective actions to address recommendations from a September 2014 report where we found that the EPA was not adequately overseeing significant portions of most states' Clean Water Act pretreatment and permit programs. We recommended that the EPA improve sharing of Toxic Release Inventory data, develop a list of chemicals beyond the priority pollutants for inclusion among the chemicals subject to

discharge permits, confirm compliance with hazardous waste notification requirements, and track required submittals of toxicity tests and violations. Because of the completed corrective actions, there is greater assurance that states are using permits to minimize potentially harmful contamination of water resources.

- In response to a February 2015 report, the EPA completed all corrective actions to address findings that EPA Region 8 was not conducting inspections at establishments in North Dakota that produce pesticides or inspections of pesticides imported into the state. In response to our recommendations, the EPA initiated inspections, developed a multi-year plan for future inspections, compiled a list of the inspections conducted annually for Region 8's North Dakota end-of-year report, and reviewed the end-of-year report to confirm that inspections have been initiated. It is expected that these corrective actions will help address the risk that pesticides are not in compliance with federal law, toxics are going undetected, and adverse human health and environmental impacts are occurring.
- The EPA completed all corrective actions to address recommendations from a July 2014 report. That report found that while the EPA and the states we reviewed took many actions to reduce Drinking Water State Revolving Fund (DWSRF) unliquidated balances, those actions had not reduced DWSRF unliquidated balances to below 13 percent of the cumulative federal capitalization grants awarded, which the Office of Water stated was the focus of its efforts. As a result, \$231 million of capitalization grant funds remained idle, loans were not issued, and communities did not implement needed drinking water improvements. We also noted that states' fundable lists did not reflect projects that would be funded in the current year, and overestimated the number of projects that will receive funding. The completed corrective actions—such as requiring states with unliquidated obligations that exceed the Office of Water's 13-percent-cutoff goal to project future cash flows to ensure funds are expended as efficiently as possible—should help address the issues reported.
- In our September 2015 early warning report, we recommended that EPA Region 9 exercise fiduciary responsibility and withhold FY 2015 funds of \$8,787,000 for the Hawaii DWSRF capitalization grant until the region is satisfied with corrective action plan implementation progress. After being briefed on our report, EPA Region 9 initiated an enforcement action against the Hawaii Department of Health for not meeting its loan commitment and disbursement targets. EPA Region 9 advised Hawaii that the FY 2015 DWSRF capitalization grant would be withheld and the region may withhold further awards.
- In 2009, we found that High Priority Violations under the Clean Air Act were not being addressed in a timely manner because regions and states did not follow policy, EPA headquarters did not oversee regional and state High Priority Violations performance, and EPA regions did not oversee state High Priority Violations performance. We recommended that the EPA revise the High Priority Violations policy to improve the EPA's ability to oversee High Priority Violation cases and clarify the roles and responsibilities of EPA headquarters and regions, the states, and local agencies. The EPA issued its revised policy in August 2014.



## WHAT REMAINS TO BE DONE

The agency's activities under this management challenge do not meet the following criteria required to justify removal: (1) an action plan, (2) monitoring efforts, and (3) demonstrated progress. EPA leadership needs to demonstrate an organizational commitment to correcting problems with the agency's oversight of key state programs designed to protect human health and the environment. To demonstrate this commitment, the agency should show it has the capacity and has developed a framework for addressing oversight issues. The agency also needs to develop a system for monitoring state, tribal and territory oversight effectiveness so that it can work toward demonstrating its progress in correcting this management challenge. As such, we are maintaining this issue as a management challenge for FY 2017, and we continue to conduct reviews of the EPA's oversight of authorized programs:

- In an October 2016 report, we found that EPA Region 5 had the authority and sufficient information to issue a Safe Drinking Water Act (SDWA) Section 1431 emergency order to protect residents in Flint, Michigan, from lead-contaminated water as early as June 2015. EPA Region 5 had information that systems designed to protect Flint drinking water from lead contamination were not in place, Flint residents had reported multiple abnormalities in the water, and test results from some homes showed lead levels above the federal action level. However, EPA Region 5 did not issue an emergency order until January 21, 2016, because the region concluded the state's actions were a jurisdictional bar preventing the EPA from issuing a SDWA Section 1431 emergency order. This occurred despite the EPA's 1991 guidance on SDWA Section 1431 orders clarifying that if state actions are deemed insufficient the EPA can and should proceed with a SDWA Section 1431 order. EPA Region 5 did not intervene under SDWA Section 1431, the conditions in Flint persisted, and the state continued to delay taking action to require corrosion control or provide alternative drinking water supplies. Corrective actions are pending.
- In a June 2016 report on the EPA's financial oversight of Superfund state contracts, we found that the EPA incurred total obligations and expenditures in excess of the authorized cost ceiling for 51 of the 504 active and closed contracts; did not perform timely, complete and accurate financial closings for 20 such contracts to ensure that both the EPA and the state had satisfied their cost share requirement; and did not have all the up-to-date information needed for an accurate Superfund state contract accrual calculation. The agency agreed with the recommendations, and corrective actions are pending.
- In a May 2016 report, we found that EPA Region 9 needed improved internal controls for oversight of Guam's consolidated cooperative agreements. We noted that EPA Region 9 project files were not readily available to third parties, and EPA Region 9 did not ensure reliability of Guam Environmental Protection Agency Safe Drinking Water Information System data. Without adequate internal controls and oversight, more than \$67 million in consolidated cooperative agreement funds may not be administered efficiently and effectively, thus reducing the impact those funds could have on protecting human health and the environment. The agency agreed with our recommendations, and corrective actions are pending.
- In March 2016, we reported that EPA efforts to bring small drinking water systems into compliance through enforcement and compliance assistance resulted in some improvement

over time. However, across EPA Regions 2, 6 and 7, we found inconsistencies in adherence to the EPA's Enforcement Response Policy. Within our sample, 10 of the systems never received a formal enforcement order, only three of 20 enforcement orders met the timeliness standard in the Enforcement Response Policy, and few cases were escalated by the EPA or state when noncompliance persisted. The agency agreed with our recommendations and proposed adequate corrective actions, which are pending.

- In a July 2015 report, we found that the EPA needs to improve oversight of permit issuance for hydraulic fracturing using diesel fuels, and address any related compliance issues. Evidence shows that companies have used diesel fuels during hydraulic fracturing without EPA or primacy state underground injection control Class II permits. The EPA has also not determined whether primacy states and tribes are following the agency's interpretive memorandum for issuing permits for hydraulic fracturing using diesel fuels. Enhanced EPA oversight can increase assurance that risks associated with diesel fuel hydraulic fracturing are being adequately addressed. The agency agreed with our recommendations or proposed actions that met the intent of our recommendations. The corrective actions are pending.
- In an April 2015 report, we found that the U.S. Virgin Islands did not meet program requirements for numerous activities related to implementing Clean Air Act, Clean Water Act, SDWA and Underground Storage Tank/Leaking Underground Storage Tank programs. EPA Region 2 oversight had not identified program deficiencies uncovered by our review, or implemented procedures to ensure that deficiencies identified by EPA Region 2 were corrected. Moreover, we found that deficiencies continued in the U.S. Virgin Islands despite EPA Region 2 oversight uncovering them in prior years. Since the EPA retains responsibility for programs implemented on its behalf—such as those in the U.S. Virgin Islands—we concluded that the agency needs to act to ensure that the public and environment are protected. We made 19 recommendations, ranging from withdrawing the U.S. Virgin Islands' authority to implement EPA programs, to providing additional EPA oversight. The EPA agreed, and has committed to taking appropriate corrective actions. Two recommendations with agreed-to corrective actions remain pending.
- In October 2014, we reported weaknesses in EPA oversight of state and local Title V programs' fee revenue practices. Title V permitting requirements are designed to reduce violations and improve enforcement of air pollution laws for the largest sources of air pollution, such as petroleum refineries and chemical production plants. We found that Title V program expenses often exceeded revenue, even though the Clean Air Act requires these programs to be solely funded by permit fees. We recommended that the EPA assess, update and re-issue its 1993 Title V fee guidance as appropriate; establish a fee oversight strategy to ensure consistent and timely actions to identify and address violations; emphasize and require periodic reviews of Title V fee revenue and accounting practices; address shortfalls in staff expertise as regions update their workforce plans; and pursue corrective actions as necessary. The EPA has committed to taking appropriate corrective actions, and completion of actions is pending.

GAO has also conducted reviews of the EPA's oversight of states, territories and tribes, and made recommendations to address identified deficiencies. For example, in 2016, GAO reported that the EPA had not collected necessary information or conducted oversight activities to determine whether state and EPA-managed Underground Injection Control class II programs are protecting underground sources of drinking water. Some of the recommendations from GAO were that the EPA require programs to report well-specific inspections data, clarify guidance on enforcement data reporting, and analyze the resources needed to oversee programs. In 2015, GAO found that financial indicators collected by the EPA as part of its oversight responsibilities do not show states' abilities to sustain their Clean Water and Drinking Water State Revolving Funds. GAO recommended that the EPA update its financial indicator guidance to include measures for identifying the growth of the states' funds. GAO also recommended that, during the reviews, the EPA develop projections of state programs by predicting the future lending capacity.

While important progress has been made, our work continues to identify challenges throughout agency programs and locations, and many of our recommendations remain to be fully implemented. We continue to perform work in this area and will continue to monitor the agency's progress in addressing this challenge.

# CHALLENGE: The EPA Needs to Improve Its Workload Analysis to Accomplish Its Mission Efficiently and Effectively

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## CHALLENGE FOR THE AGENCY

The EPA has not fully implemented controls and a methodology to determine workforce levels based upon analysis of the agency's workload. The EPA's program and regional offices have not conducted a systematic workload analysis or identified workforce needs for budget justification purposes. The EPA's ability to assess its workload—and subsequently estimate workforce levels necessary to carry out that workload—is critically important to mission accomplishment. Due to the broad implications for accomplishing the EPA's mission, we have included this as an agency management challenge since 2012.



## BACKGROUND

In 2010, we reported that the EPA did not have policies and procedures requiring that workforce levels be determined based upon workload analysis. In 2011, we reported that the EPA does not require program offices to collect and maintain workload data. Without such data, program offices are limited in their ability to analyze their workload and justify resource needs. The GAO also reported in October 2011 that the EPA's process for budgeting and allocating resources does not fully consider the agency's current workload. In March 2010, the GAO reported that it had brought this issue to the attention of EPA officials through reports in 2001, 2005, 2008 and 2009.

Since 2005, EPA offices have studied workload issues at least six different times, spending nearly \$3 million for various contractors to study the issues. However, for the most part, the EPA has not used the findings resulting from these studies. According to the EPA, the results and recommendations from the completed studies were generally not feasible to implement.

Over the past decade, the EPA's workforce levels have declined, with significant reductions in FYs 2012 through 2015, when levels declined by over 2,100 positions (including losses due to early-outs and buyouts in 2014). Without a clear understanding of its workload, it is unclear whether this decline jeopardizes the EPA's ability to meet its statutory requirements and overall mission to protect human health and the environment, or if the decline represents a natural and justifiable progression, because the EPA has completed major regulations implementing environmental statutes and states have assumed primacy over most media programs.

## THE AGENCY'S PROGRESS

The agency has not yet adopted an overall plan to address workforce analysis, but has initiated some limited pilots and surveys to address the issue.

In 2013, we conducted a follow-up review of actions the EPA has taken to address previous OIG recommendations. We found that the EPA:

- Initiated pilot projects in Regions 1 and 6 to analyze the workload for air State Implementation Plans and permits, as well as water grants and permits.
- Surveyed numerous front-line agency managers on the functions performed, thereby creating an inventory of common functions among program offices.
- Through the Office of the Chief Financial Officer, consulted with 23 other federal agencies about their workload methodologies. As a result of that analysis, the EPA selected an approach referred to as the “Table Top” method used by the U.S. Coast Guard, designed to use subject matter experts and actual data to provide estimates of workload. The Table Top approach provides flexibility in implementation, which allows for differences in organizational functions and workloads rather than attempting to fit all regions and programs into a one-size-fits-all approach. The EPA has conducted limited testing on this approach within two program areas—grants and Superfund Cost Recovery. According to EPA officials, while the methodology appears promising for grants, it became overly complicated for Superfund Cost Recovery.

The EPA did not report a workable agencywide workforce analysis plan from these limited 2013 actions.

During 2014, the EPA continued to test the workload model in other areas, including:

- Working with Grant Project Officers to evaluate and try to balance uneven workloads.
- Developing a Project Officer Estimator Tool for organizations to examine Project Officer workloads.
- Working with Grants Specialists to refine the Interagency & Grants Estimator Tool.
- Submitting a Draft Funds Control Manual to the Office of Management and Budget, and receiving and incorporating the Office of Management and Budget’s comments.

The EPA did not report a workable agencywide workforce analysis plan from these 2014 actions.

In January 2016, the EPA issued a draft Funds Control Manual. The manual is intended to fulfill the EPA’s corrective actions for several unimplemented recommendations from prior OIG reports on workload analysis. The manual highlights several tools the EPA has developed to help programs examine and understand connections between hours of work (or full-time equivalents (FTEs)) and specific tasks, products, results or outcomes. The EPA says that the tools are designed to complement existing financial, budget and program information that organizations already track and use.

The manual highlights four major types of workload analysis tools that the EPA has used: surveys, benchmarking, existing data, and analytical tools (such as the U.S. Coast Guard’s Table Top analytical framework). In response to many stakeholders’ requests (including OIG’s) to explain how the EPA’s work hours tie to specific results produced, the manual says it is important to stress that it is

extremely difficult to demonstrate this tie for many agency activities (such as research or regulatory development), so workload analyses generally should be targeted at task-driven areas, such as grants or contract awards.

The EPA has yet to implement and report the results of the funds management manual.

In the latest response to this management challenge, the EPA stated that rather than trying to create detailed FTE models, the agency focused its workload analysis on current operations. The agency found that detailed FTE models created a sense of false precision; quickly became out of date due to changing regulations, requirements and systems; and were overly sensitive to relatively small changes in the inputs.

In the FY 2016 Agency Financial Report, the agency responded:

As acknowledged by the OIG, the inherent difficulties in applying workload analysis to the highly variable, multi-year, and non-linear activities that comprise the majority of the EPA's work, limit the utility of detailed FTE-based workload analyses for broader agency program estimates. The agency has found greater value in using trend and macro-level workload reviews to estimate program needs. For example, as part of the FY 2016 budget process, the agency examined broad workload trends as a basis to move resources to address major challenges identified. As a result, the agency provided 65 additional FTEs for air program work and 40 FTEs for the Office of General Counsel legal support. In each of these areas, the agency's senior management considered longer-term trends and overall staffing rather than individual tasks and portions of FTEs. For legal work, the agency considered statistics showing increased litigation and legal review requirements. It is important to note that the "current flexibility to move resources" granted by Congress remains extremely limited and the increased resources requested in the President's Budget were not appropriated. Nonetheless, the agency maximized the available flexibilities and provided the full FTE increments to those programs in FY 2016.

## **WHAT REMAINS TO BE DONE**

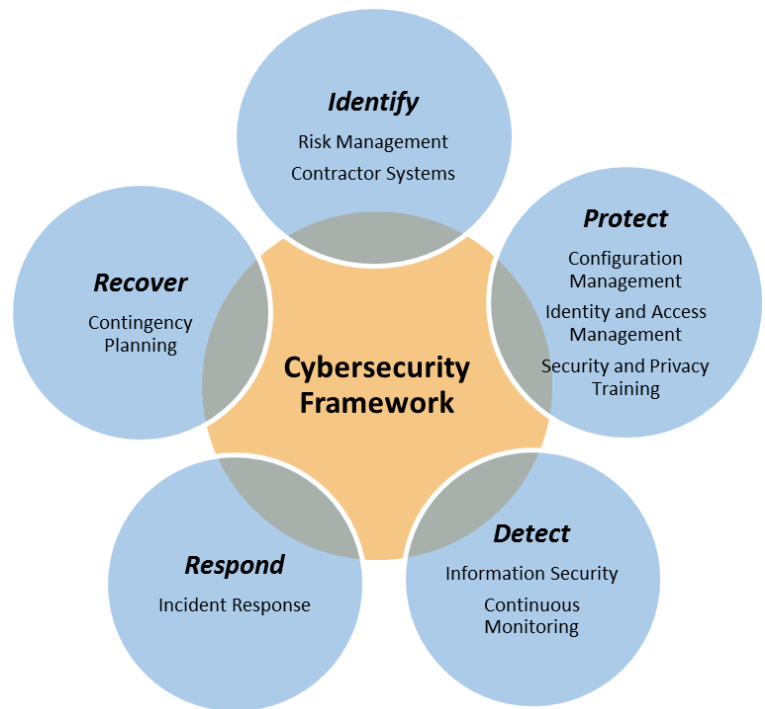
The agency's activities under this management challenge do not meet the following criteria required to justify removal: (1) agency capacity, (2) an action plan, and (3) monitoring efforts. The EPA has not developed and implemented a definitive workload analysis system. The EPA needs to more broadly quantify what its full workload entails so that it can more effectively prioritize and allocate available resources to accomplish agency work. The EPA's ability to assess its workload and estimate workforce levels necessary to carry out that workload is critical to mission accomplishment. As such, we are maintaining workload analysis as a management challenge for FY 2017. In February 2016, we announced the start of preliminary research on the EPA's Superfund workload allocation. The evaluation objective is to determine whether the EPA's distribution of Superfund resources among EPA regions supports the current regional workload.

The agency also needs to complete its workforce planning tool. The agency is piloting a workforce planning tool during the first quarter of FY 2017. The tool compares needed skills with the current supply of skills so that competency gaps can be identified and addressed through strategic hiring and training/development. The EPA states that the use of the tool will (1) allow the agency to assess the workforce regularly at all organization levels, ensuring agency employees possess the skills and abilities necessary to meet current and future mission goals and objectives; and (2) align workforce planning with agency and organizational strategic plans, corresponding action plans and budget. According to the agency, the pilot will allow insight and emphasis on workforce flexibility and development to facilitate faster adjustment to change and improved workplace performance, supporting maximum responsiveness as job functions, roles and technology evolve. It is expected that the workforce planning tool will be available agencywide by the end of FY 2017. We will continue to monitor agency progress through this and other ongoing work.

# CHALLENGE: The EPA Needs to Enhance Information Technology Security to Combat Cyber Threats

## CHALLENGE FOR THE AGENCY

Information security and implementing a robust cybersecurity mechanism capable of combating the ever-increasing threat to the agency’s data and network remains a management challenge at the EPA. Despite progress made by the agency to strengthen cybersecurity, recent audit work continues to highlight that fully implementing information security throughout the EPA requires continued senior level emphasis to address long-standing weaknesses within the information security program. Most notably, the EPA has yet to implement practices for its information security program to be considered effective for the five Cybersecurity Framework Security Functions defined by the National Institute of Standards and Technology. Likewise, our audits note the need for management to take further action to resolve audit findings designed to improve the effectiveness and efficiency of the agency’s computer network operations, and address emerging challenges the agency faces in managing contractors that provide critical support for agency systems.



## BACKGROUND

We first reported information security as a management challenge in FY 2001, and the growing reliance on interconnected networks and systems—as well as more sophisticated and financially supported adversaries—make this area equally important today. The EPA’s Office of Environmental Information is primarily responsible for information technology management. Over the years, the agency made strides to strengthen its policy framework and processes, and made marked improvements in securing the EPA’s network infrastructure and systems. However, during this same period, cyber threats have become increasingly sophisticated, which continues to underscore the need to proactively manage and bolster the agency’s cybersecurity capabilities.

Cyber attacks could have a devastating impact on the EPA’s computer systems and network, thereby potentially disrupting agency operations, as well as the lives and operations of employees and businesses who entrust the agency with their most sensitive personal or confidential business information. GAO has recognized information security as a governmentwide high-risk area since 1997. In September 2016, GAO reported that:



- Cyber incidents in FY 2016 grew 1,300 percent from the previous year.
- Federal agencies reported 77,183 incidents in FY 2015—over 10,000 more than the previous year.
- Federal agencies inconsistently implemented key laws and policies designed to establish a framework for overseeing federal information security.

GAO notes that federal systems are “inherently at risk,” and that this poses challenges because the information technology environment is complex, diverse and often geographically dispersed. Like other agencies, the EPA has a similarly complex information technology environment that is widely dispersed throughout 24 headquarters and regional offices across the nation. As such, the increased presence of cyber threats to systems that support EPA operations calls on management vigilance and commitment to protect the agency’s network. If the EPA is to realize a fully implemented information security program or have effective processes to identify, respond to and correct security vulnerabilities that place agency data and systems at risk, more effort is needed to increase the agency’s capabilities to achieve effective practices for the five Cybersecurity Framework Security Functions.

## **THE AGENCY’S PROGRESS**

In response to our FY 2016 management challenges, the EPA indicated that it “understands the threat and pervasiveness of cyber-attacks and is aware of the potential impact to the Agency’s mission if information assets are compromised.” The EPA cited that it has published 5-year Information Security and Continuous Monitoring and Risk Management strategic plans. The EPA explained that these plans identify where the agency will provide risk-based protection for the agency’s network. The EPA also noted the following plans or actions taken to address our growing concerns:

- Establish a 30-day maximum number of days that an account can remain inactive before the system automatically disables the account’s technology function in the agency.
- Develop a process to manage annual security assessments, which includes oversight by the Senior Agency Information Security Official.
- Coordinate with the U.S. Department of Homeland Security and U.S. General Services Administration to implement capabilities under the Continuous Diagnostics and Mitigation Program, which includes vulnerability management.

We acknowledge that the EPA continues to initiate actions to further strengthen or improve its information security program. However, our audit work from the past 6 years continues to highlight that the EPA faces challenges in addressing outstanding weaknesses within its information security program, and in managing contractors that provide key support in operating or managing systems on behalf of the agency.

Addressing Outstanding Weaknesses

Our FY 2016 report on the agency’s progress in completing corrective actions associated with information technology security recommendations made in FYs 2010–2012 found that the agency did not ensure that agreed-to corrective actions were:

- Fully implemented or carried out timely.
- Recorded accurately or managed effectively in the Management Audit Tracking System (MATS).
- Verified to have actually fixed the identified weakness.

Despite steps taken to correct many of the recommendations highlighted in this report, our current audit work disclosed that further management emphasis is needed to address the overarching concern with how the EPA manages the weaknesses within the agency’s information security program. For example, the program office responsible for overseeing the EPA’s information security program lacks a permanent or full-time employee to serve as its Audit Follow-Up Coordinator—a critical position for monitoring the completion of audit recommendations that impact the agencywide information security program. Furthermore, as noted in the EPA’s December 2016 Enterprise Information Security Metric Report, several offices made little to no progress in completing plans of actions and milestones that address weaknesses in the EPA’s information security program. Our audit determined that emphasis is needed to ensure completion of agency agreed-to weaknesses in the program.

**Analysis of the EPA’s actions taken to address information security audit recommendations**

OIG Report and Recommendation Reviewed	Agency Completed Agreed-to Corrective Action(s)?	Corrective Action(s) Timely Completed as Agreed-to?	Completion Date Accurately Recorded in MATS?	Documentation Maintained to Support Actions Taken Readily Available?	Agency Verified Action(s) Taken Actually Fixed the Deficiency?	Agency Continued to Implement the Action(s)?
Report 10-P-0058 Recommendation 2-1	No	No	No	No	No	No
Report 11-P-0159 Recommendation 2	No	No	No	No	No	No
Report 11-P-0277 Recommendation 2	No	No	No	No	No	No
Report 12-P-0836 Recommendation 12	No	No	No	No	No	No
Report 12-P-0899 Recommendation 8	No	No	No	No	No	No
Report 13-P-0257 Recommendation 5	Yes	Yes	No	No	Yes	Yes
Compliance Percentage by Element Reviewed	17%	17%	0%	0%	17%	17%

Source: OIG analysis.

Our FY 2016 annual audit of the EPA’s information security program disclosed that more work is needed by the agency to achieve managed and measurable information security functions to manage cybersecurity risks. In this regard, the EPA’s information security program was not graded as effective for any of the Cybersecurity Framework Security Functions defined by the National Institute of Standards and Technology. The table below summarizes the four areas where the EPA did not receive a positive rating and significant management emphasis is needed.

**Results of testing assessed as “Not Met”**

<b>Cybersecurity Framework Security Function</b>		
<i>FISMA Metric Domain</i>	<i>FISMA Metric Domain</i>	<b>Federal Information Security Modernization Act Metric</b>
<b>Identify</b>	<b>Risk Management</b>	EPA did not implement an insider threat detection and prevention program, including the development of comprehensive policies, procedures, guidance and governance structures, in accordance with Executive Order 13587 and the National Insider Threat Policy.
	<b>Contractor System</b>	<p>EPA did not establish or implement a process to ensure that contracts/ statements of work/solicitations for systems and services include appropriate information security and privacy requirements and material disclosures; Federal Acquisition Regulation clauses; and clauses on protection, detection and reporting of information.</p> <p>EPA did not obtain sufficient assurance that the security controls of systems operated on the organization’s behalf by contractors or other entities and services provided on the organization’s behalf meet Federal Information Security Modernization Act requirements, Office of Management and Budget policy, and applicable National Institute of Standards and Technology guidelines.</p>
<b>Protect</b>	<b>Identity and Access Management</b>	<p>EPA did not ensure that all users are only granted access based on least privilege and separation-of-duties principles.</p> <p>EPA did not ensure that accounts are terminated or deactivated once access is no longer required or after a period of inactivity, according to organizational policy.</p>
	<b>Security and Privacy Training</b>	EPA did not identify and track status of specialized security and privacy training for all personnel (including employees, contractors and other organization users) with significant information security and privacy responsibilities requiring specialized training.
<b>Respond</b>	<b>Incident Response</b>	<p>EPA did not integrate incident response activities with organizational risk management, continuous monitoring, continuity of operations, and other mission/business areas, as appropriate.</p> <p>EPA did not capture qualitative and quantitative performance metrics on the performance of its incident response program. The organization did not ensure that the data supporting the metrics was obtained accurately and in a reproducible format, or that data is analyzed and correlated in ways that are effective for risk management.</p> <p>EPA did not implement its defined incident response technologies. Also, the tools are not interoperable to the extent practicable; do not cover all components of the organization’s network; and have not been configured to collect and retain relevant and meaningful data consistent with the organization’s incident response policy, procedures and plans.</p> <p>EPA incident response stakeholders did not implement, monitor and analyze qualitative and quantitative performance measures across the organization and did not collect, analyze and report data on the effectiveness of the organization’s incident response program.</p> <p>EPA did not implement processes for consistently implementing, monitoring and analyzing qualitative and quantitative performance measures across the organization; and is not collecting, analyzing and reporting data on the effectiveness of its processes for performing incident response.</p> <p>EPA data supporting incident response measures and metrics are not obtained accurately, consistently and in a reproducible format.</p>

<b>Cybersecurity Framework Security Function</b>	<b>FISMA Metric Domain</b>	<b>Federal Information Security Modernization Act Metric</b>
		<p>EPA uses technologies for consistently implementing, monitoring and analyzing qualitative and quantitative performance across the organization; however, the data are not consistently collected, analyzed and reported on the effectiveness of its technologies for performing incident response activities.</p> <p>EPA has not defined or implemented incident response performance measures that include data on the implementation of its incident response program for all sections of the network.</p>
<b>Recover</b>	<b>Contingency Planning</b>	<p>EPA did not test its Business Continuity Plan and Disaster Recovery Plan for effectiveness and update plans as necessary.</p> <p>EPA did not determine alternate processing and storage sites based upon risk assessments that ensure that the potential disruption of the organization's ability to initiate and sustain operations is minimized, and are not subject to the same physical and/or cybersecurity risks as the primary sites.</p>

Source: OIG analysis.

FISMA: Federal Information Security Modernization Act

In addition, our FY 2016 annual report of EPA financial statements disclosed that information technology processes need to be improved to protect the integrity of EPA data used for decision-making, and that the EPA lags behind in taking steps to remediate long-standing information system controls needed to protect financial data. In particular, our audit noted that the EPA lacks (1) documentation to identify the equipment needed to restore operations and network connectivity for the financial and mixed-financial applications housed at its data center, (2) controls to monitor the actions of contractors with direct access to data within the agency's core financial application, and (3) offsite data storage plans for key financial applications. Additionally, the EPA has yet to remediate a FY 2009 weakness to implement controls within its financial systems to ensure personnel with incompatible duties cannot process financial transactions. Also, the agency has yet to address multiple long-standing weaknesses with regard to how the EPA manages user accounts for its financial applications.

### Managing Contractors

Increased management oversight is needed to ensure agency contractors comply with mandated information system security requirements.

- In our FY 2015 report on EPA contract systems, we noted that personnel with oversight responsibilities for contractor systems were not aware of the requirements outlined in EPA information security procedures. As a result, EPA contractors did not conduct the required annual security assessments, did not provide security assessment results to the agency for review, and did not establish the required incident response capability. Data breaches costing from \$1.4 million to over \$12 million could have occurred for the systems included in our review if compromised.
- Our FY 2015 audit of the EPA's administration of cloud services disclosed that the EPA is not fully aware of the extent of its use of cloud services, and thereby is missing an opportunity to help make the most efficient use of its limited resources regarding cloud-based

acquisitions. We found that inadequate oversight of a cloud service provider resulted in the agency placing an EPA system within the vendor's network that (1) did not comply with federal security requirements, and (2) contained vendor terms of service that were not compliant with the Federal Risk and Authorization Management Program.

- Our FY 2015 annual audit of the EPA's information security program disclosed that agency management of contractor systems requires significant management attention to correct deficiencies noted in this area. We found that significant improvements are needed to (1) ensure contractors comply with required security controls, (2) maintain an accurate inventory of contractor systems, and (3) identify contractor systems that interface with EPA systems.

The EPA took steps to address some of the recommendations noted in the above reports. Nonetheless, current audit work continues to note that the EPA lacks a holistic approach to managing accountability over its contractors and ensuring personnel responsible for overseeing contractors are aware of their responsibilities.

- Our FY 2016 annual audit of the EPA's information security program disclosed that the agency did not identify and track the status of specialized security training for contractors with significant information security responsibilities.

## **WHAT REMAINS TO BE DONE**

The agency's activities under this management challenge do not meet the following criteria required to justify removal: (1) agency capacity, (2) an action plan, (3) monitoring efforts, and (4) demonstrated progress. The EPA has taken steps to address many of our audit recommendations. However, the following actions remain to address cybersecurity challenges:

1. Verify that the Audit Follow-Up Coordinator function in the Office of Environmental Information has sufficient staffing to be effective, and ensure managers and staff understand the process for this function and report concerns with workload.
2. Develop and implement a process that:
  - a) Strengthens internal controls for monitoring and completing corrective actions on all open audits.
  - b) Maintains appropriate documentation to support completion of corrective actions; if delegated to sub-offices, the process should include regular inspections by the Office of Environmental Information's Audit Follow-Up Coordinator.
  - c) Specifies when sub-offices must report corrective actions as completed.
  - d) Requires verification that corrective actions fixed the issue(s) that led to the recommendation.
  - e) Requires sub-offices to continue to use the improved processes.
  - f) Requires Office of Environmental Information managers to update the office's Audit Follow-Up Coordinator on the status of upcoming corrective actions.
3. Take steps to remediate weaknesses identified during the FY 2016 annual audit of the EPA's information security program.

4. Develop a process to train EPA Contract Officer Representatives on their responsibilities for monitoring the contractors to ensure they meet specified EPA information security responsibilities. This includes (a) monitoring that contractors that operate information systems on behalf of the EPA perform the mandated information security assessments, and (b) ensuring that contractors with significant information security responsibilities complete required role-based training.
5. Implement plans to review all EPA contracts and task orders, and place the EPA-developed contract clause requiring contractors to complete role-based training into all EPA contracts and task orders.
6. Implement a process to create a listing of agency contractor personnel with significant information security responsibilities who require role-based training; validate that the identified contractor personnel complete the annual role-based training requirement, and report the information as required by the Federal Information Security Modernization Act.